

## IN THE CLAIMS

The following is a complete listing of the claims, and replaces all earlier versions and listings.

1 - 10            (Cancelled)

11. (currently amended)      A method of launching a catapult, the method comprising:

generating a launching force by means of a launching device,

keeping a carriage immovable by means of a locking device at a launching position of the catapult,

directing the launching force to the carriage, which is movable from the launching position to a releasing position guided by a body of the catapult,

releasing the locking device at a launching moment, whereby the carriage moves towards the releasing position at an accelerating speed by the action of the launching force,

sending off an aircraft arranged in the carriage to the air at the releasing position,

directing a damping force to the carriage at the launching moment, the direction of the force being opposite relative to the launching force, and the damping force resisting the movement of the carriage towards the releasing position,

dimensioning the magnitude of the damping force to maximum at the launching moment,

~~and reducing the damping force from maximum to minimum after the launch on a predetermined examination period~~

reducing the magnitude of the damping force relative to the movement of the carriage,

and

reducing the damping force from maximum to minimum once the carriage has traveled a predetermined damping distance towards the releasing position.

12. (canceled)

13. (currently amended) A method as claimed in claim 11, further comprising:  
reducing the magnitude of the damping force relative to the movement of the carriage,  
[[and]] reducing the damping force once the carriage has ~~travelled~~ traveled a  
predetermined damping distance towards the releasing position, and  
reducing the damping force from maximum to zero on the damping distance, [[whose]]  
which has a magnitude [[is]] of between 150 and 500 mm.

14. (currently amended) A method as claimed in claim 11, further comprising:  
reducing the magnitude of the damping force substantially linearly.

15. (currently amended) A method as claimed in claim 11, further comprising:  
dimensioning the maximum damping force on the basis of the magnitude of the launching  
force employed.

16. (currently amended) A catapult for launching an unmanned aircraft, [[and]] the  
catapult comprising:  
an elongated body, a launching position being provided on a portion of a first end thereof,  
and a releasing position being provided on a portion of a second end thereof,

a carriage movable from the launching position to the releasing position and back, and the carriage comprising fastening members for supporting the aircraft,

a launching device configured to generate a launching force for accelerating the carriage in a launching direction from the launching position to the releasing position,

at least one locking device for keeping the carriage at the launching position and for releasing [[it]] the locking device at a launching moment, and

at least one takeoff damper connected to the locking device by means of a joint configured to generate a damping force [[whose]] having direction that is opposite relative to the launching force, [[and]] the damping force [[is]] being arranged to restrict the acceleration of the carriage at the launching moment,

[[and]] wherein the damping force is at its maximum at the launching moment and [[that]] the damping force is arranged to decrease to zero after the carriage has moved a damping distance of a predetermined magnitude in the launching direction.

17. (previously presented) A catapult as claimed in claim 16, wherein

the locking device comprises at least one locking piece configured to pivot around a joint, the locking piece comprises at least one connecting member for holding the carriage, the connecting member being configured to release the carriage when the locking piece is turned towards the launching direction by a predetermined angle position,

at least one takeoff damper is configured to resist the turning of the locking piece towards the launching direction and configured to generate the damping force,

and the magnitude of the damping force is arranged to decrease relative to a turning angle of the locking piece.

18. (currently amended) A catapult as claimed in claim 16, wherein

the locking device comprises at least one takeoff damper configured to generate the damping force,

the launching device comprises at least one actuator configured to generate the launching force,

and the catapult comprises means for identifying the magnitude of the launching force[[,]] and means for adjusting the damping force on the basis of the launching force.

19. (currently amended) A locking device for a catapult, comprising:

at least one locking piece configured to pivot around a joint towards a launching direction and towards a returning direction of the catapult,

a connecting member provided in the locking piece, [[and]] to which connecting member a carriage comprised by the catapult is connectible before a launch and from where it is released after the launch,

[[and]] wherein the locking device comprises at least one takeoff damper, and the takeoff damper is configured to generate a damping force,

[[and]] wherein the takeoff damper is connected to the locking piece and configured to resist the turning pivoting of the locking piece towards the launching direction,

and wherein

the takeoff damper is a pressure medium cylinder,

the takeoff damper is connected to the locking piece by means of a first joint, and further to a body of the catapult by means of a second joint,

the shortest distance of a straight line passing through the first joint and the second joint is

arranged to generate an effective distance,

and the pivoting of the locking piece after the launching moment is arranged to reduce the effective distance, the damping force also being arranged to decrease substantially in the same ratio.

20. (canceled)

21. (new) A method of launching a catapult, the method comprising:

generating a launching force by means of a launching device,

keeping a carriage immovable by means of a locking device at a launching position of the catapult,

directing the launching force to the carriage, which is movable from the launching position to a releasing position guided by a body of the catapult,

releasing the locking device at a launching moment, whereby the carriage moves towards the releasing position at an accelerating speed by the action of the launching force,

sending off an aircraft arranged in the carriage to the air at the releasing position,

directing a damping force to the carriage at the launching moment, the direction of the force being opposite relative to the launching force, and the damping force resisting the movement of the carriage towards the releasing position,

dimensioning the magnitude of the damping force to maximum at the launching moment,

reducing the damping force from maximum to minimum after the launch on a predetermined examination period,

reducing the magnitude of the damping force relative to the movement of the carriage,

reducing the damping force once the carriage has traveled a predetermined damping distance towards the releasing position,

and reducing the damping force from maximum to zero on the damping distance, which has a magnitude of between 150 and 500 mm.

22. (new) A method of launching a catapult, the method comprising:

generating a launching force by means of a launching device,

keeping a carriage immovable by means of a locking device at a launching position of the catapult,

directing the launching force to the carriage, which is movable from the launching position to a releasing position guided by a body of the catapult,

releasing the locking device at a launching moment, whereby the carriage moves towards the releasing position at an accelerating speed by the action of the launching force,

sending off an aircraft arranged in the carriage to the air at the releasing position,

directing a damping force to the carriage at the launching moment, the direction of the force being opposite relative to the launching force, and the damping force resisting the movement of the carriage towards the releasing position,

dimensioning the magnitude of the damping force to maximum at the launching moment,

reducing the damping force from maximum to minimum after the launch on a predetermined examination period, and

dimensioning the maximum damping force on the basis of the magnitude of the launching force employed.

23. (new) A catapult for launching an unmanned aircraft, the catapult comprising:

- an elongated body, a launching position being provided on a portion of a first end thereof, and a releasing position being provided on a portion of a second end thereof,
- a carriage movable from the launching position to the releasing position and back, and the carriage comprising fastening members for supporting the aircraft,
- a launching device configured to generate a launching force for accelerating the carriage in a launching direction from the launching position to the releasing position,
- at least one locking device for keeping the carriage at the launching position and for releasing the locking device at a launching moment, and
- at least one takeoff damper connected to the locking device by means of a joint configured to generate a damping force having a direction that is opposite relative to the launching force, the damping force being arranged to restrict the acceleration of the carriage at the launching moment,

wherein

- the damping force is at its maximum at the launching moment and the damping force is arranged to decrease to zero after the carriage has moved a damping distance of a predetermined magnitude in the launching direction,
- the locking device comprises at least one locking piece configured to pivot around a joint,
- the locking piece comprises at least one connecting member for holding the carriage, the connecting member being configured to release the carriage when the locking piece is turned towards the launching direction by a predetermined angle position,
- at least one takeoff damper is configured to resist the turning of the locking piece towards the launching direction and configured to generate the damping force, and

the magnitude of the damping force is arranged to decrease relative to a turning angle of the locking piece.

24. (new) A catapult for launching an unmanned aircraft, the catapult comprising:
- an elongated body, a launching position being provided on a portion of a first end thereof, and a releasing position being provided on a portion of a second end thereof,
  - a carriage movable from the launching position to the releasing position and back, and the carriage comprising fastening members for supporting the aircraft,
  - a launching device configured to generate a launching force for accelerating the carriage in a launching direction from the launching position to the releasing position,
  - at least one locking device for keeping the carriage at the launching position and for releasing the locking device at a launching moment, and
  - at least one takeoff damper connected to the locking device by means of a joint configured to generate a damping force having a direction that is opposite relative to the launching force, the damping force being arranged to restrict the acceleration of the carriage at the launching moment,
- wherein
- the damping force is at its maximum at the launching moment and the damping force is arranged to decrease to zero after the carriage has moved a damping distance of a predetermined magnitude in the launching direction,
  - the locking device comprises at least one takeoff damper configured to generate the damping force,
  - the launching device comprises at least one actuator configured to generate the launching



force, and

the catapult comprises means for identifying the magnitude of the launching force and means for adjusting the damping force on the basis of the launching force.

25. (new) A catapult for launching an unmanned aircraft, the catapult comprising:

an elongated body, a launching position being provided on a portion of a first end thereof, and a releasing position being provided on a portion of a second end thereof,

a carriage movable from the launching position to the releasing position and back, and the carriage comprising fastening members for supporting the aircraft,

a launching device configured to generate a launching force for accelerating the carriage in a launching direction from the launching position to the releasing position,

at least one locking device for keeping the carriage at the launching position and for releasing the locking device at a launching moment, and

at least one takeoff damper connected to the locking device by means of a joint configured to generate a damping force having a direction that is opposite relative to the launching force, the damping force being arranged to restrict the acceleration of the carriage at the launching moment,

wherein

the damping force is at its maximum at the launching moment and the damping force is arranged to decrease to zero after the carriage has moved a damping distance of a predetermined magnitude in the launching direction, and

the locking device and the takeoff damper are arranged under an uppermost surface of the elongated body of the catapult along which surface the carriage is arranged to be moved.